

In re: Schwindeman et al
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Please cancel Claims 28-90.

REMARKS

Currently, Claims 1, 3, 5, 6, 17, 21, 22, 25 and 27 are pending. Claims 2, 4, 7-16, 18-20, 23, 24, 26 and 28-90 have been cancelled.

Claims 1-3, 5, 6, 15, 17, 18, 24, 25, 27, 28, 31, 91 and 92 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applications regard as the invention. Claims 1-3, 5, 6, 9, 15, 17, 18, 24, 25, 27, 28, 31, 91 and 92 are rejected under 35 U.S.C. § 102(b) as being anticipated by Engel et al. (USP 5,527,753), cited by applicants. Claims 1-3, 5, 6, 9, 15, 17, 18, 24, 25, 27, 28, 31, 91 and 92 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C 103(a) as obvious over Schwindeman et al. (USP 5,565,526), cited by Applicants. Claims 1-3, 5, 6, 9, 15, 17, 18, 24, 25, 27, 28, 31, 91 and 92 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C 103(a) as obvious over Letchford et al. (WO 97/05173). The Applicant's respectfully traverse these rejections.

Election of Species

Applicants have complied with the Restriction Requirement and have amended or cancelled claims so that the pending claims are readable on the various species elected in the December 3, 2001 Amendment in Response to Restriction/Election Requirement.

§ 112, Second Paragraph Rejection

The Examiner has rejected the claims in that the Examiner believes that the absolute number of diene units in Applicant's initiator is ambiguous. The Examiner states that:

since the instant claims recite that Q is "one or more diene hydrocarbons" and that N is between 0 and 1 non-inclusively. This renders the claims ambiguous since any number of diene units may be viewed as being acceptable depending on how many units of diene Q embraces.

The language "one or more" refers to the number of different conjugated diene hydrocarbons which could be used. For example isoprene and 1, 3-butadiene both could be used. The "one or more" **does not** refer to the molar equivalents added. The molar equivalents, "n" is defined as being greater than 0 and less than 1. Thus under such a scenario where Q is isoprene and 1,3-butadiene, "n" is not 2 but is the value of molar equivalents, "n" as defined by the claims to be less than 1. Thus, Applicants believe that the claims are definite, and respectfully request the § 112, second paragraph rejection be withdrawn.

The Present Invention and the Art Rejections

Applicants have unexpectedly found that adding less than one equivalent of a chain extension agent to a protected functionalized initiator can be sufficient to significantly increase the solubility of the initiator in hydrocarbon solutions. The expectation of those skilled in the art, such as exemplified in the assignee of record's own work, i.e., Engel, Schwindeman or Letchford, was that at least one equivalent of the chain extension agent would be necessary.

In view of the clarification of the definition of "Q" and "n", Applicant believes that the Examiner's art rejections are primarily based on the faulty assumption that "n" can be greater than one. With respect to the Examiner's comments that the use of "slightly less than 1 isoprene unit" would have been obvious to a practitioner having ordinary skill in the art, Applicant respectfully disagrees.

The art as evidenced by the cited references, Engel, Schwindemann and

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Letchford, teaches those skilled in the art that at least one molar equivalent is necessary to improve solubility. A prior art reference must teach or suggest *all* the recitations of the claims, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. MPEP § 2143. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. MPEP § 2143.01, citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

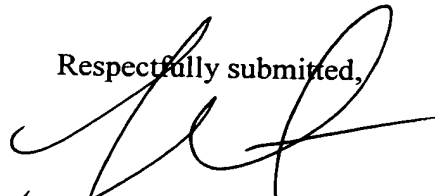
As recently emphasized by the Court of Appeals for the Federal Circuit, to support combining references, evidence of a suggestion, teaching, or motivation to combine must be **clear and particular**, and this requirement for clear and particular evidence is not met by broad and conclusory statements about the teachings of references. *In re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). In an even more recent decision, the Court of Appeals for the Federal Circuit has stated that, to support combining or modifying references, there must be **particular** evidence from the prior art as to the reason the skilled artisan, with no knowledge of the claimed invention, **would have selected these components for combination in the manner claimed**. *In re Kotzab*, 55, USPQ2d 1313, 1317 (Fed. Cir. 2000).

There is no clear and particular evidence in the references to modify the number of molar equivalents to be less than 1. The only suggestion for such is Applicant's specification. Without such suggestion in the art, Applicants maintain that the § 102 and § 103 rejections are improper, and respectfully request that the § 102 and § 103 rejections be withdrawn.

In view of the above, it is respectfully submitted that this application is in condition for allowance, which action is respectfully requested.

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Respectfully submitted,


E. Michael Sajovec
Registration No. 31,793



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PATENT TRADEMARK OFFICE

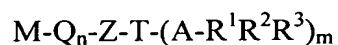
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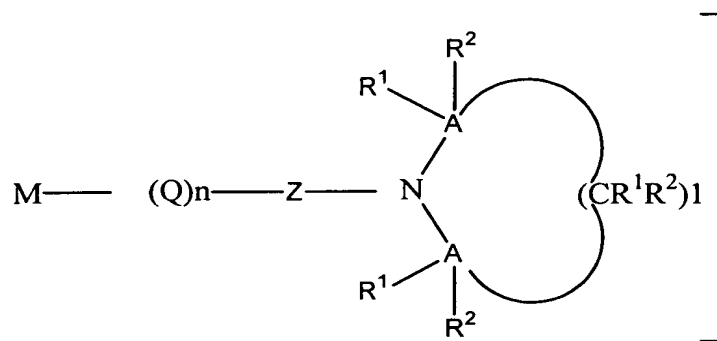

Clara R. Beard

Version with Markings to Show Changes

1. (amended) A polymerization initiator comprising a compound of the formula



[or



wherein:

M is [an alkali metal selected from the group consisting of] lithium[, sodium and potassium];

Q is a saturated or unsaturated hydrocarbyl group derived by incorporation of at least one [or more] conjugated diene hydrocarbons or mixtures thereof, **one or more alkenylsubstituted aromatic compound, or mixtures of one or more dienes with one or more alkenylsubstituted aromatic compounds into the M-Z linkage**];

Z is a [branched or] straight chain hydrocarbon connecting group which contains 3-25 carbon atoms[, optionally containing aryl or substituted aryl groups];

T is [selected from the group consisting of] oxygen[, sulfur, and nitrogen groups and mixtures thereof];

(A-R¹R²R³)_m is a protecting group in which A is carbon [an element selected from Group IVa of the Periodic Table of the Elements,] and R¹, R², and R³ are

[independently defined as hydrogen,] alkyl[, substituted alkyl, aryl, substituted aryl, cycloalkyl and substituted cycloalkyl];

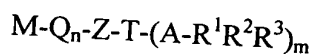
[l is an integer from 1 to 7;]

n is >0 and <1; and

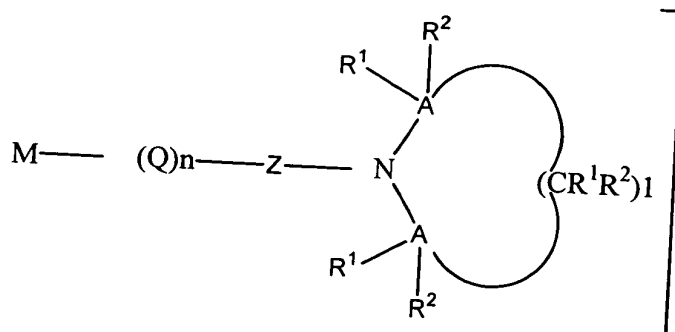
m is 1 [when T is oxygen or sulfur, and 2 when T is nitrogen].

Please cancel Claims 2, 4 and 7-16.

17. (amended) A hydrocarbon composition comprising one or more protected functionalized chain extended anionic polymerization initiators or the formula



[or



wherein:

M is [an alkali metal selected from the group consisting of] lithium[, sodium and potassium];

Q is a saturated or unsaturated hydrocarbonyl group derived by incorporation of at least one [or more] conjugated diene hydrocarbons or mixtures thereof, one or more alkenylsubstituted aromatic compound, or mixtures of one or more dienes with one or more alkenylsubstituted aromatic compounds into the M-Z linkage;

Z is a [branched or] straight chain hydrocarbon connecting group which contains 3-25 carbon atoms[, optionally containing aryl or substituted aryl

groups];

T is [selected from the group consisting of] oxygen[, sulfur, and nitrogen groups and mixtures thereof];

$(A-R^1R^2R^3)_m$ is a protecting group in which A is carbon [an element selected from Group IVa of the Periodic Table of the Elements,] and R^1 , R^2 , and R^3 are [independently defined as hydrogen,] alkyl[, substituted alkyl, aryl, substituted aryl, cycloalkyl and substituted cycloalkyl];

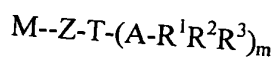
[l is an integer from 1 to 7;]

n is >0 and <1; and

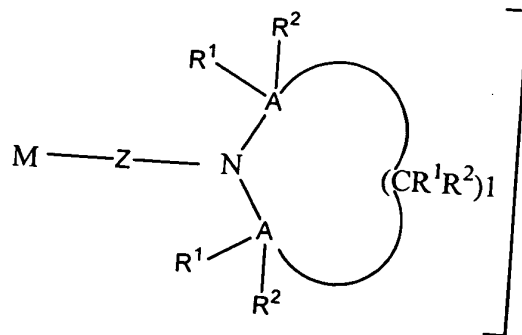
m is 1 [when T is oxygen or sulfur, and 2 when T is nitrogen].

Please cancel Claims 18-20.

21. (amended) The composition of Claim 20, wherein said at least one additional initiator comprises one or more non-Chain extended compounds of the formula



[or



wherein:

M is [an alkali metal selected from the group consisting of] lithium[, sodium and potassium];

Q is a saturated or unsaturated hydrocarbonyl group derived by incorporation of at least one [or more] conjugated diene hydrocarbons or mixtures thereof, one or more alkenylsubstituted aromatic compound, or mixtures of one or more dienes with one or more alkenylsubstituted aromatic compounds into the M-Z linkage];

Z is a [branched or] straight chain hydrocarbon connecting group which contains 3-25 carbon atoms[, optionally containing aryl or substituted aryl groups];

T is [selected from the group consisting of] oxygen[, sulfur, and nitrogen groups and mixtures thereof];

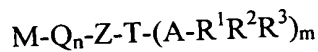
$(A-R^1R^2R^3)_m$ is a protecting group in which A is carbon [an element selected from Group IVa of the Periodic Table of the Elements,] and R^1 , R^2 , and R^3 are [independently defined as hydrogen,] alkyl[, substituted alkyl, aryl, substituted aryl, cycloalkyl and substituted cycloalkyl];

[l is an integer from 1 to 7;]

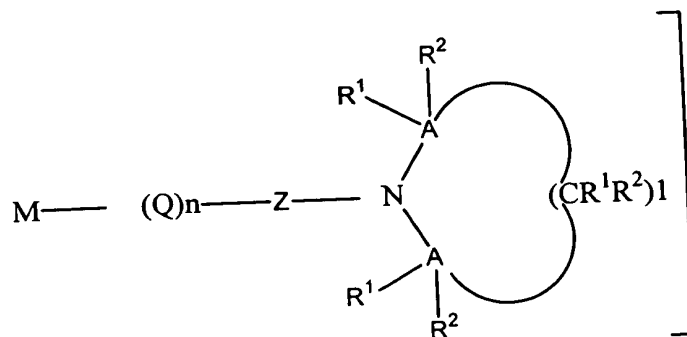
n is >0 and <1; and

m is 1 [when T is oxygen or sulfur, and 2 when T is nitrogen].

22. (amended) The composition of Claim 20, wherein said at least one additional initiator comprises one or more chain extended compounds of the formula



[or



wherein:

M is [an alkali metal selected from the group consisting of] lithium[, sodium and potassium];

Q is a saturated or unsaturated hydrocarbyl group derived by incorporation of at least one [or more] conjugated diene hydrocarbons or mixtures thereof, one or more alkenylsubstituted aromatic compound, or mixtures of one or more dienes with one or more alkenylsubstituted aromatic compounds into the M-Z linkage];

Z is a [branched or] straight chain hydrocarbon connecting group which contains 3-25 carbon atoms[, optionally containing aryl or substituted aryl groups];

T is [selected from the group consisting of] oxygen[, sulfur, and nitrogen groups and mixtures thereof];

$(A-R^1R^2R^3)_m$ is a protecting group in which A is carbon [an element selected from Group IVa of the Periodic Table of the Elements,] and R^1 , R^2 , and R^3 are [independently defined as hydrogen,] alkyl[, substituted alkyl, aryl, substituted aryl, cycloalkyl and substituted cycloalkyl];

[l is an integer from 1 to 7;]

n is >0 and <1; and

m is 1 [when T is oxygen or sulfur, and 2 when T is nitrogen].

Please cancel Claims 23, 24 and 26.

27. (amended) The composition of Claim 25[26], wherein Q comprises isoprene.

Please cancel Claims 28-90.